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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,340	06/04/2002	Frank Seela	1803-336-999	2412

7590 04/28/2005

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EXAMINER

RILEY, JEZIA

ART UNIT	PAPER NUMBER
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1637

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,340

Applicant(s)

SEELA ET AL.

Examiner

Jezia Riley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 26-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-21, 26, 27 and 30-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-21 and 26-35 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/22/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The proposal of the alternative Grouping Scheme (ASG) by applicants has been reviewed. The examiner agrees that the ASG proposed by applicants is appropriate and therefore the restriction requirement will be based on said ASG.

Applicant's election with traverse of Group VI in the reply filed on 2/28/05 is acknowledged. The traversal is on the ground(s) that the restriction requirement proposed by the examiner is improper under PCT Rule 13.1 (Unity of Invention). This has been found persuasive and therefore Group VI (claims 28 and 29) of applicant's alternative grouping has been examined.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 28 and 29, the nucleic acid binding compounds comprises a sequence which is complementary to one of said particular sequences of said nucleic acids and therefore said nucleic acid binding compounds are composed of more than one nucleobase. Further, in claims 28 and 29 it is stated that said nucleic acid binding compounds is a compound according to claim 1, 13, and 14. However, claims 13 and

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14 are directed to compounds of formula VI or formula VII. Both formula VI and VI are single nucleobase. Therefore it is unclear how the compounds of claims 13 and 14 can comprise a sequence complementary to one of said nucleic acids.

Claim 29 is vague and indefinite because it is unclear what it is meant by "disintegrating the probe". It is unclear if the probe is decomposed into single bases or else. It is unclear if the disintegration is done chemically or enzymatically.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claim 28 is rejected under 35 U.S.C. 103(a) as being obvious over Seela et al. (Collection Symposium Series Vol. 2 1999, 124-128) in view of Chollet et al. (Nucleic acids research Vol. 16, Number 1, 1988).

Seela et al. discloses the synthesis of 2-aza-2'-deoxydenosine which are viewed to be inclusive of the compounds of instant claims 1, 13, 14 (see scheme 1 page 124), and the solid phase synthesis of oligonucleotides comprising same. The reference studies the oligonucleotides duplex stabilities. According to Table I, the replacement of one central dA-dT base pair by one 2-aza-2'-deoxydenosine-dT pair reduces the T_m of duplex by 5°C, the replacement of two base pairs reduces the T_m of duplex by 10°C, etc. The duplex stability is further linearly decreased if the number of 2-aza-2'-deoxydenosine-dT pairs is increased (page 126-128).

Chollet discloses the substitution of bases by analogues in DNA, which increases the stability of the Watson-Crick base pair. (page 305). Southern blot hybridization studies with probes containing 2-aminoadenine is described in page 310. Which is viewed to be inclusive of the solid phase having immobilized on its surface the nucleic acid binding compounds.

Therefore it would have been obvious at the time the invention was made to use said modified oligonucleotides for the determination of the presence or absence of nucleic acids comprising a particular sequence in a sample. Oligonucleotide probes of defined sequence are important tools for the identification and isolation of specific DNA,

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cDNA or RNA sequences. High specificity during the hybridization process is the most important feature and the basis for the widespread use of synthetic oligonucleotide probes. The introduction of additional stabilization to DNA duplexes would allow one to use more stringent hybridization conditions and therefore increase the probe specificity for its target. (Chollet et al. Page 306)


6. No claim is allowed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jezia Riley whose telephone number is 571-272-0786. The examiner can normally be reached on 9:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuesday, April 26, 2005



JEZIA RILEY
PRIMARY EXAMINER